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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

KRECK, JOHN J

ART UNIT	PAPER NUMBER
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3673

DATE MAILED: 11/25/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/841,447

Applicant(s)

WELLINGTON ET AL. *h*

Examiner

John Kreck

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 947-1016 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 947-950, 952-961, 963-977, 979-987, 989-1004, 1006-1008 and 1010-1016 is/are rejected.
- 7) ☒ Claim(s) 951, 962, 978, 988, 1005 and 1009 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 12 February 2002 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) *5, 6, 9, 11, 14, 18*
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____

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DETAILED ACTION

The Art Unit location of your application in the USPTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Art Unit 3673.

An interview was conducted with Eric Meyertons on 8/19/02 for a related application. During this interview, it was determined that applicant's definition of hydrocarbons was meant to include fossil fuels; which may also include oxygen, nitrogen, or sulfur in their molecular structures; but not to include minerals such as trona. Although this definition is somewhat broader than the generally accepted chemist's definition; it generally corresponds to the definition in the petroleum industry. It was also agreed that "at least about 7" heat sources per production well is meant to give some flexibility where large numbers of production wells are used, and the "about" was not meant to apply to the case of a single production well. It was also determined that applicants' definition of "non-condensable hydrocarbon" also applies to "non-condensable component".

The preliminary amendments dated 9/25/01 and 2/12/02 have been entered.

Claims 947-1016 are pending in this application.

Specification

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is

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requested in correcting any errors of which applicant may become aware in the specification.

Drawings

The proposed drawing correction and/or the proposed substitute sheets of drawings, filed on 3/1/2002 have been approved. A proper drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The correction to the drawings will not be held in abeyance.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

1. Claims 947-1016 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over copending applications (including the present application): 09/840,936; 09/840,937; 09/841,000; 09/841,060; 09/841,061; 09/841,127; 09/841,128; 09/841,129; 09/841,130; 09/841,131; 09/841,170; 09/841,193; 09/841,194; 09/841,195; 09/841,238; 09/841,239; 09/841,240; 09/841,284; 09/841,285; 09/841,286; 09/841,287; 09/841,288; 09/841,289; 09/841,290; 09/841,291; 09/841,292; 09/841,293; 09/841,294; 09/841,295; 09/841,296; 09/841,297; 09/841,298; 09/841,299; 09/841,300; 09/841,301; 09/841,302; 09/841,303; 09/841,304;

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09/841,305; 09/841,306; 09/841,307; 09/841,308; 09/841,309; 09/841,310; 09/841,311; 09/841,312; 09/841,429; 09/841,430; 09/841,431; 09/841,432; 09/841,433; 09/841,434; 09/841,435; 09/841,436; 09/841,437; 09/841, 38; 09/841,439; 09/841,440; 09/841,441; 09/841,442; 09/841,443; 09/841,444; 09/841,445; 09/841,446; 09/841,447; 09/841,448; 09/841,449; 09/841,488; 09/841,489; 09/841,490; 09/841,491; 09/841,492; 09/841,493; 09/841,494; 09/841,495; 09/841,496; 09/841,497; 09/841,498; 09/841,499; 09/841,500; 09/841,501; 09/841,502; 09/841,632; 09/841,633; 09/841,634; 09/841,635; 09/841,636; 09/841,637; 09/841,638; and 09/841,639.

37 CFR 1.78(b) provides that when two or more applications filed by the same applicant contain conflicting claims, elimination of such claims from all but one application may be required in the absence of good and sufficient reason for their retention during pendency in more than one application. The discussion below sets forth the Office's basis for its determination that each of these ninety applications contains at least one claim that conflicts with another one of the related co-pending applications identified above. Each of these ninety applications includes the same specification and collectively these ninety applications present over five thousand claims. The Office has shown that each of these ninety applications contains at least one claim that conflicts with another one of the related co-pending applications identified above, and an analysis of each of five thousand claims in the ninety related co-pending applications would be an extreme burden on the Office requiring tens of thousands of claim comparisons. Therefore, the Office is requiring applicant to resolve the conflict between these applications and comply with 37 CFR 1.78(b) by either:

- (1) filing a terminal disclaimer in each of the related ninety-one applications terminally disclaiming each of the other ninety applications; or,

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(2) provide a statement that all claims in the ninety applications have been reviewed by applicant and that no conflicting claims exist between the a, applications. Such a statement must set forth factual information to identify how all the claims in the instant application are distinct and separate inventions from all the claims in the above identified ninety applications.

See MPEP 804.02 IV for a discussion of multiple double patenting rejections and the requirements for a single terminal disclaimer.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 947-950, 952, 953, 955, 956, 966-971, 972, 973, 976, 977, 979, 980, 982, 983, 989, 993-995, 996-1001, 1004, 1007, 1010, and 1014-1016 are rejected under 35 U.S.C. 102(b) as being anticipated by Alleman (U.S. Patent number 2,786,660).

Alleman teaches the method of treating a hydrocarbon formation including the steps of heating a portion of the formation to a temperature sufficient to support

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oxidation; flowing an oxidant; reacting the oxidant with hydrocarbons and transferring heat as called for in claim 947.

Alleman also teaches the temperature above about 400°C as called for in claim 948.

Alleman also teaches the critical flow orifices (83, 84) as called for in claim 949.

, Alleman also teaches the removing reaction products as called for in claim 950.

With regards to claim 952; the diffusion is inherent.

Alleman also teaches heating with reaction products as called for in claim 953.

Alleman also teaches the air as called for in claim 955.

Alleman also teaches the fluid free of nitrogen (oxygen) as called for in claim 956.

With regards to claims 966 and 967; the increase in permeability is inherent.

With regards to claims 968; the greater than 60% yield is inherent.

Alleman also teaches the well along strike as called for in claims 969-971.

Regarding independent claim 972:

Alleman teaches the method of treating a hydrocarbon formation including the steps of heating a portion of the formation to a temperature sufficient to support oxidation; flowing an oxidant; reacting the oxidant with hydrocarbons and transferring heat with the reaction products being removed as called for in claim 972.

Alleman also teaches the temperature above about 400°C as called for in claim 973.

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Alleman also teaches the critical flow orifices (83, 84) as called for in claim 976.

Alleman also teaches the removing reaction products as called for in claim 977.

With regards to claim 979; the diffusion is inherent.

Alleman also teaches heating with reaction products as called for in claim 980.

Alleman also teaches the air as called for in claim 982.

Alleman also teaches the fluid free of nitrogen (oxygen) as called for in claim 983.

With regards to claim 989; the conduction is inherent.

With regards to claims 993 and 994; the increase in permeability is inherent.

With regards to claims 995; the greater than 60% yield is inherent.

Regarding independent claim 996:

Alleman teaches the method of treating a hydrocarbon formation including the steps of heating a portion of the formation to a temperature sufficient to support oxidation; providing an oxidizing fluid; allowing the oxidizing fluid to react with hydrocarbons and transferring heat with the reaction products being removed as called for in claim 996.

With regards to claim 997; the diffusion is inherent.

Alleman also teaches the orifices (83, 84) as called for in claim 998.

Alleman also teaches the critical flow orifices (83, 84) as called for in claim 999.

Alleman also teaches the conduit in the opening and the removing oxidation products as called for in claim 1000.

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Alleman also teaches the conduit in the opening and the removing oxidation products and transferring heat as called for in claim 1001.

Alleman also teaches the center conduit and outer conduit in the opening and the removing oxidation products and transferring heat as called for in claim 1004.

With regards to claim 1007; the pyrolysis zone adjacent to the heat zone is inherent.

With regards to claim 1010; the conduction is inherent.

With regards to claims 1014 and 1015; the increase in permeability is inherent.

With regards to claims 1016; the greater than 60% yield is inherent.

3. Claims 947, 948, 950, 952, 953, 955, 956, 965, 966, 967, 968, 972, 973, 977, 979, 980, 982, 983, 989, 992, 993, 994, 995, 996, 997, 1000, 1001, 1007, 1010, 1013, 1014, 1015, and 1016 are rejected under 35 U.S.C. 102(b) as being anticipated by Terry, et al. (U.S. Patent number 4,093,025).

Terry teaches the method of treating a hydrocarbon formation including the steps of heating a portion of the formation to a temperature sufficient to support oxidation; flowing an oxidant; reacting the oxidant with hydrocarbons and transferring heat as called for in claim 947.

Terry also teaches the temperature above about 400°C as called for in claim 948.

Terry also teaches the removing reaction products as called for in claim 950.

With regards to claim 952; the diffusion is inherent.

Terry also teaches heating with reaction products as called for in claim 953.

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Terry also teaches the air as called for in claim 955.

Terry also teaches the fluid free of nitrogen (oxygen) as called for in claim 956.

Terry also teaches the providing hydrogen and heating with heat from hydrogenation (this is inherent) as called for in claim 965.

With regards to claims 966 and 967; the increase in permeability is inherent.

With regards to claims 968; the greater than 60% yield is inherent.

Regarding independent claim 972:

Terry teaches the method of treating a hydrocarbon formation including the steps of heating a portion of the formation to a temperature sufficient to support oxidation; flowing an oxidant; reacting the oxidant with hydrocarbons and transferring heat with the reaction products being removed as called for in claim 972.

Terry also teaches the temperature above about 400°C as called for in claim 973.

Terry also teaches the removing reaction products as called for in claim 977.

With regards to claim 979; the diffusion is inherent.

Terry also teaches heating with reaction products as called for in claim 980.

Terry also teaches the air as called for in claim 982.

Terry also teaches the fluid free of nitrogen (oxygen) as called for in claim 983.

With regards to claim 989; the conduction is inherent.

Terry also teaches the providing hydrogen and heating with heat from hydrogenation (this is inherent) as called for in claim 992.

With regards to claims 993 and 994; the increase in permeability is inherent.

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With regards to claims 995; the greater than 60% yield is inherent.

Regarding independent claim 996:

Terry teaches the method of treating a hydrocarbon formation including the steps of heating a portion of the formation to a temperature sufficient to support oxidation; providing an oxidizing fluid; allowing the oxidizing fluid to react with hydrocarbons and transferring heat with the reaction products being removed as called for in claim 996.

With regards to claim 997; the diffusion is inherent.

Terry also teaches the conduit in the opening and the removing oxidation products as called for in claim 1000.

Terry also teaches the conduit in the opening and the removing oxidation products and transferring heat as called for in claim 1001.

Terry also teaches the center conduit and outer conduit in the opening and the removing oxidation products and transferring heat as called for in claim 1004.

With regards to claim 1007; the pyrolysis zone adjacent to the heat zone is inherent.

With regards to claim 1010; the conduction is inherent.

With regards to claims 1014 and 1015; the increase in permeability is inherent.

With regards to claims 1016; the greater than 60% yield is inherent.

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Terry also teaches the providing hydrogen and heating with heat from hydrogenation (this is inherent) as called for in claim 1013.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 953, 990, 1002, 1003, and 1011 rejected under 35 U.S.C. 103(a) as being unpatentable over Alleman.

Alleman teaches all of the limitations of claims 947, 972, and 996; from which these claims depend.

Alleman fails to teach the conductivity greater than $0.5\text{W/m}^{\circ}\text{C}$.

It is well known that most coals have thermal conductivities greater than $0.5\text{W/m}^{\circ}\text{C}$; thus it would have been obvious to one of ordinary skill in the art at the time of the invention to have practiced the method of Alleman in a coal seam with a thermal conductivity greater than $0.5\text{W/m}^{\circ}\text{C}$ as called for in claims 953, 990, and 1011.

Alleman also teaches the conduit, but fails to teach the flow rate of the oxidizing fluid approximately equal to the flow rate of the products. It would have been obvious to one of ordinary skill in the art at the time of the invention to have practiced the Alleman method so that the flow rate of the oxidizing fluid approximately equal to the flow rate of the products, as called for in claim 1002, in order to prevent pressure build-up.

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Alleman also teaches the conduit, but fails to teach the controlling the pressure between the oxidizing fluid and the product. It would have been obvious to one of ordinary skill in the art at the time of the invention to have practiced the Alleman method with the step of controlling the pressure between the oxidizing fluid and the product, as called for in claim 1003, in order to prevent pressure build-up.

5. Claims 954 and 981 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alleman in view of Bain, et al. (U.S. Patent number 5,008,085).

Alleman teaches all of the limitations of claims 947 and 972; from which these claims depend.

Alleman fails to teach the hydrogen peroxide.

Bain teaches that hydrogen peroxide is useful in a similar process, based on the nature of the reactants (col. 8, lines 16-25).

It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the Alleman method to have used hydrogen peroxide in place of air or oxygen, as called for in claims 954 and 981, based on the nature of the hydrocarbons and the desired end products.

6. Claims 958, 959, 960, 964, 974, 975, 986, 991, 1006, and 1012 are rejected under 35 U.S.C. 103(a) as being unpatentable over Terry, et al.

Terry teaches all of the limitations of claims 947, 972, and 996; from which these claims depend.

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Terry fails to explicitly disclose the pressure, but teaches that the pressure should balance the hydrostatic head. It is well known that the hydrostatic head is greater than 2 bar in many coal seams. It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the Terry method to have the pressure greater than about 2.0 bar, as called for in claims 964, 991, and 1012, based on existing hydrostatic head.

Terry fails to teach the electric heater. It is well known in the art to use electric heaters to initiate combustion underground. Electric heating is advantageous because it can be tightly controlled. It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the Terry method to have used electrical heater as called for in claims 958, 974, and 1006, in order to carefully control the heating.

Terry fails to teach the exhaust from a surface burner. It is well known in the art to use exhaust from a surface burner to initiate combustion underground. Heating using the exhaust from a surface burner is advantageous because it is relatively inexpensive. It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the Terry method to have used exhaust from a surface burner as called for in claims 959 and 975, in order to reduce expenses.

Terry fails to teach the flameless distributed combustor. It is well known in the art to use heat from a flameless distributed combustor to initiate combustion underground. Heating using flameless distributed combustor is advantageous because it allows for high temperatures. It would have been obvious to one of ordinary skill in the art at the

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time of the invention to have modified the Terry method to have used exhaust from a surface burner as called for in claims 960 and 986, in order to allow for a higher temperature.

7. Claims 957, 984, and 985 are rejected under 35 U.S.C. 103(a) as being unpatentable over Terry, et al '025 in view of Terry, et al. (U.S. Patent number 4,099,567).

Terry '025 teaches all of the limitations of claims 947, 972, and 996; from which these claims depend. Terry fails to teach the upper limit to the temperature.

Terry '567 teaches that it is desirable to keep the temperature below the fusion temperature of the coal. It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the method of Terry '025 to have limited the oxidant to keep the temperature below about 1200°C (and also to have therefore inhibited the formation of nitrous oxides) as called for in claims 957, 984, and 985; based on the properties of the coal formation.

8. Claims 961, 987, and 1008 are rejected under 35 U.S.C. 103(a) as being unpatentable over Terry in view of Elkins (U.S. Patent number 2,734,579).

Terry fails to teach the controlling the temperature and pressure wherein the temperature is controlled as a function of the pressure or the pressure is controlled as a function of the temperature.

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Elkins teaches controlling the pressure in order to lower the temperature (col. 3, line 46); this is done in order to help prevent overheating. It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the Terry process to have included the temperature is controlled as a function of the pressure or the pressure is controlled as a function of the temperature as called for in claim 2431, and as taught by Elkins, in order to prevent overheating.

Allowable Subject Matter


9. Claims 951, 962, 978, 988, 1005, and 1009 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Kreck whose telephone number is (703)308-2725. The examiner can normally be reached on M-F 6:00 am - 3:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Heather Shackelford can be reached on (703)308-2978. The fax phone numbers for the organization where this application or proceeding is assigned are (703)305-3597 for regular communications and (703)305-7687 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)306-4177.



John Kreck
Examiner
Art Unit 3673

JJK
November 22, 2002